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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
08/818,289	03/14/1997	EDWARD W. STARK	653.001US1	9365

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EXAMINER

ROSENBERGER, RICHARD A

ART UNIT	PAPER NUMBER
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2877

DATE MAILED: 04/14/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

08/818,289

Applicant(s)

STARK, EDWARD W.

Examiner

Richard A Rosenberger

Art Unit

2877

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 2/10/2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,6,7,11-15,17-19,22-26,33-43,45-53 and 56-71 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 3,6,11-15,17-19,22-26,35,45-53 and 56-72 is/are allowed.
- 6) ☒ Claim(s) 1,7,33 and 36-40 is/are rejected.
- 7) ☒ Claim(s) 34,41 and 42 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1, 7, 33, and 36-40 are rejected under 35 U.S.C. 103(a) as being unpatentable over the prior art discussed on pages 2-4 of the instant specification and Borsboom (US 4,884,891) in view of Howarth (US 3,994,602).

The specification, on page 3, states that "typically" in the prior art interactance measurements are made using a "central aperture surrounded a small distance away by a ring aperture"; a "ring aperture" would at least obviously be circular. Borsboom shows an arrangement with this structure, with a central aperture 2 and a circular ring 7 around the central aperture some distance apart; see figure 4 in particular. The ring of the prior art and of Borsboom are "extended in length as a ring or slit shape" with "the total circumferential length of said ring or length of said slit shape being substantially greater than the mean distance separating" the two areas defining the light path through the material. The arrangement of the prior art in the specification discloses only a single path through the sample.

It is known in the art to measure light passing through a material at two different distances; Borsboom teaches a second path through the object (scattered directly back) and Howarth (figures 6 and 7) teaches two different path lengths through the material, neither directly back. It thus would have been obvious to provide means, as in Howarth, to measure

to different distances through the material being tested, because the art recognizes that this is useful. It would have been a straight-forward and obvious manner to do this in an arrangement such as shown by Borsboom of adding a second ring at the desired second distance.

Borsboom teaches, or at least clearly suggests, including a plurality of rings; in column 3 beginning on line 61 and running through column 4, line 1, that reference teaches

"...a sensor head could be made in which a large number of juxtaposed optical fibers of diameter d is *arranged concentrically around a central optical fiber with an increasing radius*. Measurements made with such a sensor head gives a good picture of the amount of reflected light that has entered the *fibres arranged concentrically in rings*, and hence of *the light reflection as a function of the distance* from the light beamed into the material being investigated..." (emphasis added).

This at least clearly suggests placing fibers in rings (plural) concentrically around the central fiber at different distances.

The use of other arrangements than concentric circles for the illumination and detection areas would be obvious because it is the transmission of light through the material, and not the particular geometry of the light source and detectors, that is of functional importance.

3. As set forth in previous office actions, claims 11-15, 17-19, 22-26, 35, 43, 45-53 and 56-71 are allowable, as is new claim 72. The amendment of 10 February 2003 has overcome the rejection under 35 USC 112 of claim 6, which is allowable.

As set forth in previous office actions, claims 34, 41 and 42 contain allowable subject matter but are objected to as being dependent from unallowed parent claims. These claims would be allowable if rewritten in independent form including all of the limitations of their respective parent claims.

4. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

5. Papers related to this application may be submitted to Group 2800 by facsimile transmission. The faxing of such papers must conform to the notice published in the Official Gazette, 1096 OG 30 (15 November 1989). The fax number is (703) 308-7722.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to R. A. Rosenberger whose telephone number is (703) 308-4804.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 308-0956.

R. A. Rosenberger
10 April 2003



Richard A. Rosenberger
Primary Examiner